

**TITLE:** California dairies – Evaluation of covered lagoons and digesters for emissions reductions

**PROBLEM:** Only limited information exists regarding the effectiveness of lagoon covers and digesters in reducing dairy waste emissions. Several jurisdictions within California are anxious to implement these technologies as control measures, but are somewhat limited due to incomplete information regarding their effectiveness.

**PREVIOUS WORK:** Several dairy lagoons have been covered and digesters developed. Unfortunately, none of this work had an air quality emphasis so information has not been collected regarding the net effect of these systems on air quality.

**OBJECTIVE:** Determine the control effectiveness of covered lagoons and digesters used for processing dairy waste. Evaluate the cross-media effects of these processes, such as changes in water quality.

**DESCRIPTION:** Perform a field test study over 18-24 months at a location with an existing covered lagoon and a location with a digester system. Fully evaluate the gases generated by each system. Fully evaluate the gases at the tail-end of each system, such as the internal combustion engine used for electricity generation. Evaluate the chemistry of the lagoon water or other effluents ultimately released to assess its environmental impacts.

**BENEFITS:** Questions regarding the efficacy of digesters and covered lagoons will be answered. If these technologies are shown to be effective in reducing emissions, there are substantial environmental benefits. Not only could they be an effective emission reduction measure, but digesters and covered lagoons could also provide a source of clean electricity generation by burning the dairy waste gases.

**COST:** \$250,000

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